



## PCT

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**(81) Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

**(84) Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG).

(25) Filing Language: English

**(26) Publication Language:** English

(30) Priority Data:  
PD2002U000007 24 January 2002 (24.01.2002) IT

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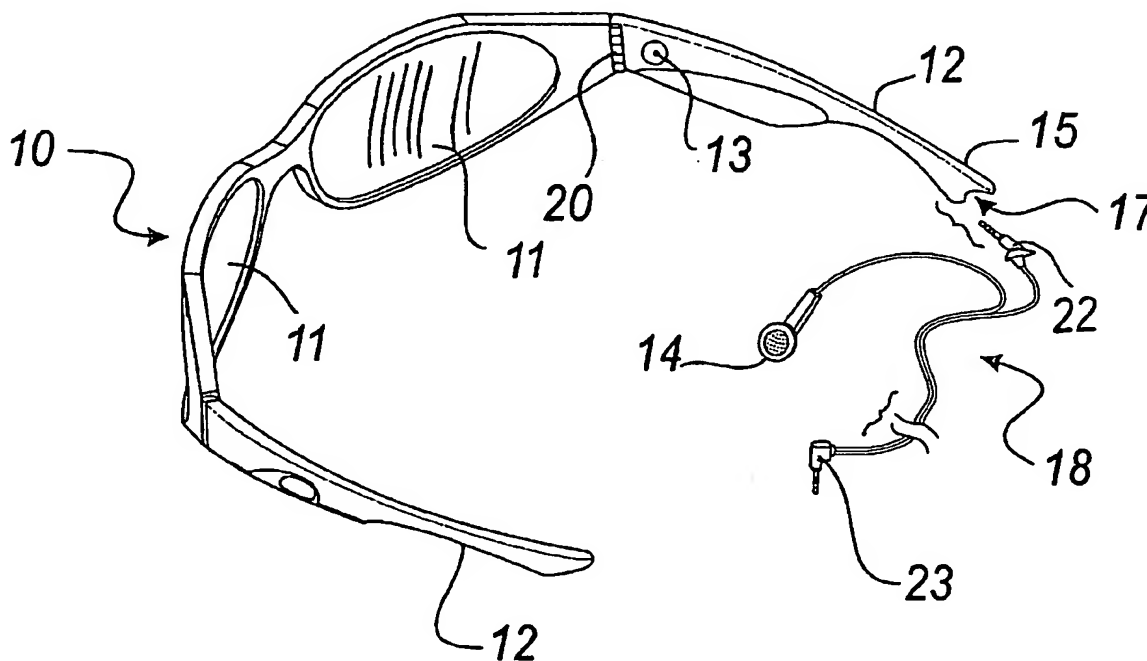
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**Published:**

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**(54) Title: EYEGLASSES PRESET FOR CONNECTION TO CELLULAR TELEPHONES FOR TRANSMITTING AND RECEIVING CALLS**



**(57) Abstract:** Eyeglasses comprising a microphone (13) in the front part, electronic noise-reduction components (27, 28), connection cables (16) located inside the structure, and a connector (17) for a cable (18) for connection to a cellular telephone.

**WO 03/062906 A1**

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# EYEGASSES PRESET FOR CONNECTION TO CELLULAR TELEPHONES FOR TRANSMITTING AND RECEIVING CALLS

## Technical Field

The present invention relates to a pair of eyeglasses preset for connection  
5 to cellular telephones for transmitting and receiving calls.

## Background Art

Over the last few decades, as telephony has developed, telephone  
connections have become increasingly frequent; however, while fixed  
telephones require interrupting any activity in order to make and/or receive  
10 calls, the arrival of the cellular telephone has given a new meaning to the  
concept of telephony, allowing telephone connections even in particular  
situations that are not strictly linked to the work or private environment and  
without the need to have a telephone connected to the telephone line by  
means of wires and placed in a specific room.

15 It is in fact possible to communicate substantially in any enclosed or open  
location covered by the telephone network and without necessarily having to  
interrupt activity or work.

However, the use of a cellular telephone, which entails the use of one's  
hands to hold and handle the device, reply and/or dial the number, as well as  
20 the use of one's sight to perform certain functions, distracts the user's  
attention and concentration from the activity he is performing, such as for  
example driving a vehicle, maneuvering a machine, performing sports  
activities, et cetera, possibly producing dangerous situations.

## Disclosure of the Invention

25 The aim of the present invention is to provide eyeglasses which, in  
addition to the normal optical and/or sunlight-barrier function, are capable of  
constituting a means for transmitting and receiving cellular telephone calls,  
so that the user can receive and make calls without taking his attention off  
the activity he is performing.

30 Within this aim, a consequent object of the invention is to provide

eyeglasses that reduce the risk of emission of electromagnetic waves, which are believed to be dangerous for human organs such as the brain.

Another object is to provide eyeglasses that can be worn as easily and comfortably as conventional eyeglasses.

5 A further object is to provide eyeglasses that can be used with any kind of cellular telephone.

Another object is to provide eyeglasses in which the devices for transmitting and receiving cellular telephone calls are integrated so as to not alter their ergonomic features.

10 A still further object is to provide eyeglasses whose structure allows industrial-scale production at competitive costs.

This aim and these and other objects that will become better apparent hereinafter are achieved by eyeglasses, characterized in that they comprise a microphone in a front part thereof, electronic noise-reduction components,  
15 connection cables located inside the structure, and a connector for a cable for connection to a cellular telephone.

#### Brief description of the Drawings

Further characteristics and advantages of the invention will become better apparent from the following detailed description of an embodiment thereof,  
20 illustrated by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a rear perspective view of eyeglasses according to the invention;

Figure 2 is an enlarged-scale perspective view of a detail of the  
25 eyeglasses of Figure 1;

Figure 3 is a perspective view of the eyeglasses of Figure 1 with a corresponding telephone;

Figure 4 is a circuit diagram of the components located inside the frame of the eyeglasses;

30 Figure 5 is a detail view of a universal three-contact connector for a

connecting cable that is used;

Figure 6 is a detail view of a four-contact connector for a connecting cable that is used.

#### Ways of carrying out the Invention

5 With reference to the figures, a pair of eyeglasses according to the invention is, as usual, constituted by a front 10, which supports lenses 11 (of the sight-correcting type or of the sunlight-barrier type), to the ends of which temples 12 are articulated.

According to the invention, the eyeglasses comprise a microphone 13, preferably an ultraflat high-sensitivity one, which is located in the inner front part that is not in sight, for example of one of the temples 12. Electronic noise-reduction components, described hereinafter in greater detail, are also located inside the frame, as well as connecting cables 16. A connector 17 for a cable 18 for connection to a cellular telephone 19 is also provided.

15 The microphone 13 can also be integrated in the front 10, in which case electrical contacts for continuity must be provided at a corresponding hinge 20.

As regards the connector 17, it is of the female type and is embedded in a terminal 15, and can be of the commonly commercially available type that is complementary to a male connector 22 normally used in cellular telephone connections and located at the end of the connecting cable 18.

The connecting cable also comprises a branch, at the end of which an in-ear headset 14 is arranged.

25 The other end of the cable 18 is provided with another male connector 23, which can be inserted in a corresponding female connector 24 of the telephone 19.

The connector 23 can be either of the universal three-contact type (Figure 5), or of the four-contact type (Figure 6, designated by the reference numeral 23a).

30 The connector 17 is conveniently of the three-contact type in order to

interface with all telephone connection kits.

The connecting cables 16 (preferably of the shielded coaxial type in order to eliminate any interference) are embedded in the plastics material in the case of eyeglasses with a frame made of plastics, or are located inside  
5 hollow regions of the structure in the case of eyeglasses having a metal structure.

As regards the electronic noise reduction components, with particular reference to the previously cited Figure 4, an SMD passive noise reduction component is arranged in parallel to the microphone 13; such component is  
10 constituted by a capacitor 27 with a resistor 28 in series, also of the SMD type, in order to eliminate all transmission noise caused by electrostatic discharges.

A button 29 is further integrated in the temple 12, adjacent to the microphone 13, and is connected in parallel to the microphone 13 and in  
15 series to an interface resistor 30, which allows to recognize the clearance signal given by the button 29.

The button 29, which avoids the need to pull out the telephone whenever it is used, has at least one of the following functions:

- manual answer (call acceptance);
- 20 -- end of call;
- voice call start.

In a board 31 on which the electronic components are located, the surface arranged opposite the components is shielded with conducting material in order to avoid external noise.

25 In practice it has been found that the intended aim and objects of the present invention have been achieved.

The eyeglasses in fact appear to be entirely similar to normal corrective eyeglasses or sunglasses and can be used normally for this purpose, with the additional possibility, for example when driving, motorcycling, cycling or in  
30 other situations, to connect the microphone, by means of a cable, to a

cellular telephone and to a corresponding in-ear headset and therefore to be able to transmit and receive calls.

Moreover, with the automatic answer function it is not necessary to hold the telephone in one's hand, and by means of the button 29 it is possible to  
5 make calls locally without taking one's sight off the action, avoiding dangerous situations that can occur when driving a car.

In practice, the materials used, so long as they are compatible with the contingent use, as well as the dimensions, may be any according to requirements.

10 The disclosures in Italian Utility Model Application No. PD2002U000007 from which this application claims priority are incorporated herein by reference.

CLAIMS

1. Eyeglasses, characterized in that they comprise a microphone (13) in a front part thereof, electronic noise-reduction components (27, 28), connection cables (16) located inside the structure, and a connector (17) for a cable (18) for connection to a cellular telephone (19).

2. The eyeglasses according to claim 1, characterized in that said microphone (13) is located in the internal part thereof that is not visible.

3. The eyeglasses according to claim 1, characterized in that said microphone (13) is integrated in the front part of a temple (12).

4. The eyeglasses according to claim 1, characterized in that said microphone (13) is integrated in the front (10).

5. The eyeglasses according to claim 1, characterized in that said connecting cables (16) are embedded in the plastics material in the case of eyeglasses having a plastics frame.

6. The eyeglasses according to claim 1, characterized in that said connecting cables (16) are located inside hollow regions of the structure in the case of metal eyeglasses.

7. The eyeglasses according to claim 1, characterized in that said connector (17) is a female connector embedded in the corresponding terminal (15), said female connector (17) being complementary to the connectors used in cellular telephony connections.

8. The eyeglasses according to claim 1, characterized in that said electronic noise reduction components comprise an SMD passive noise reduction component, which is connected in parallel to said microphone and is constituted by a capacitor (27) and, in series with said capacitor, a resistor (28), also of the SMD type.

9. The eyeglasses according to claim 1, characterized in that said connecting cables (16) are of the shielded coaxial type.

10. The eyeglasses according to claim 1, characterized in that for noise reduction there is a shielding, made of conducting material, of the base on



which the electronic components are located, said shielding being provided on the opposite surface with respect to said components.

11. The eyeglasses according to claim 1, characterized in that a button (29) is integrated in the frame and is connected in parallel to said microphone (13).

12. The eyeglasses according to claim 11, characterized in that said button (29) is arranged in series to an interfacing resistor (30), which allows to recognize the clearance signal given thereby.

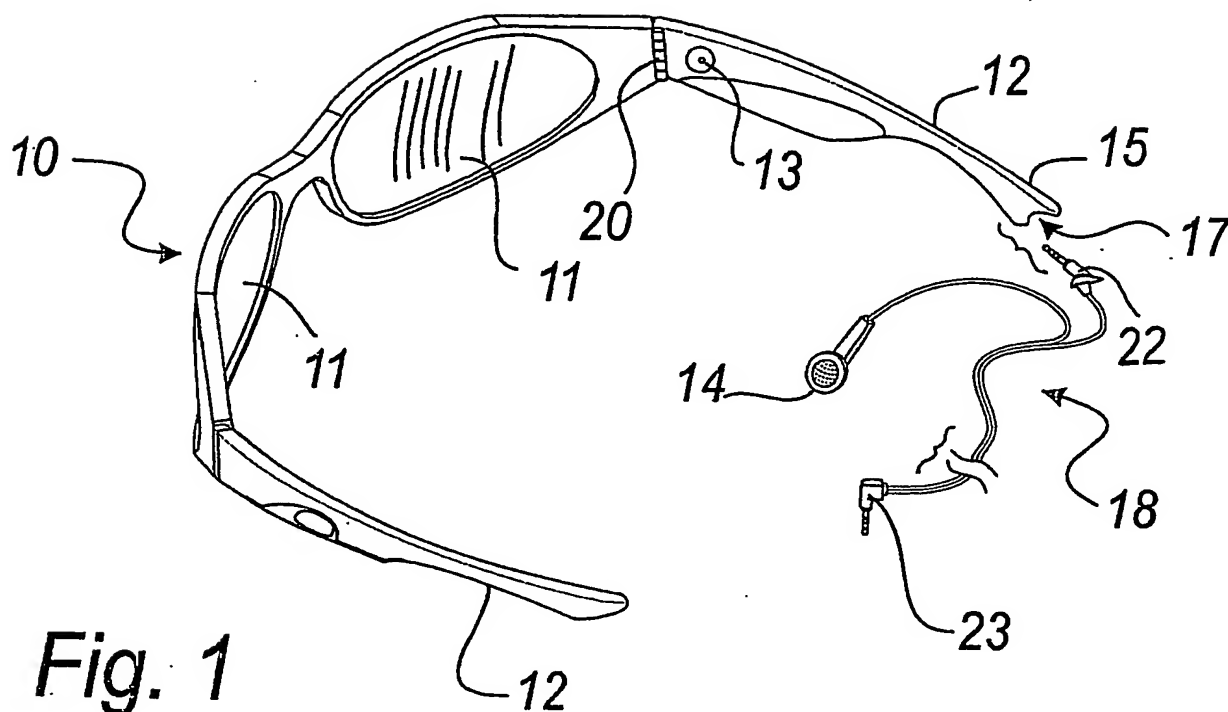
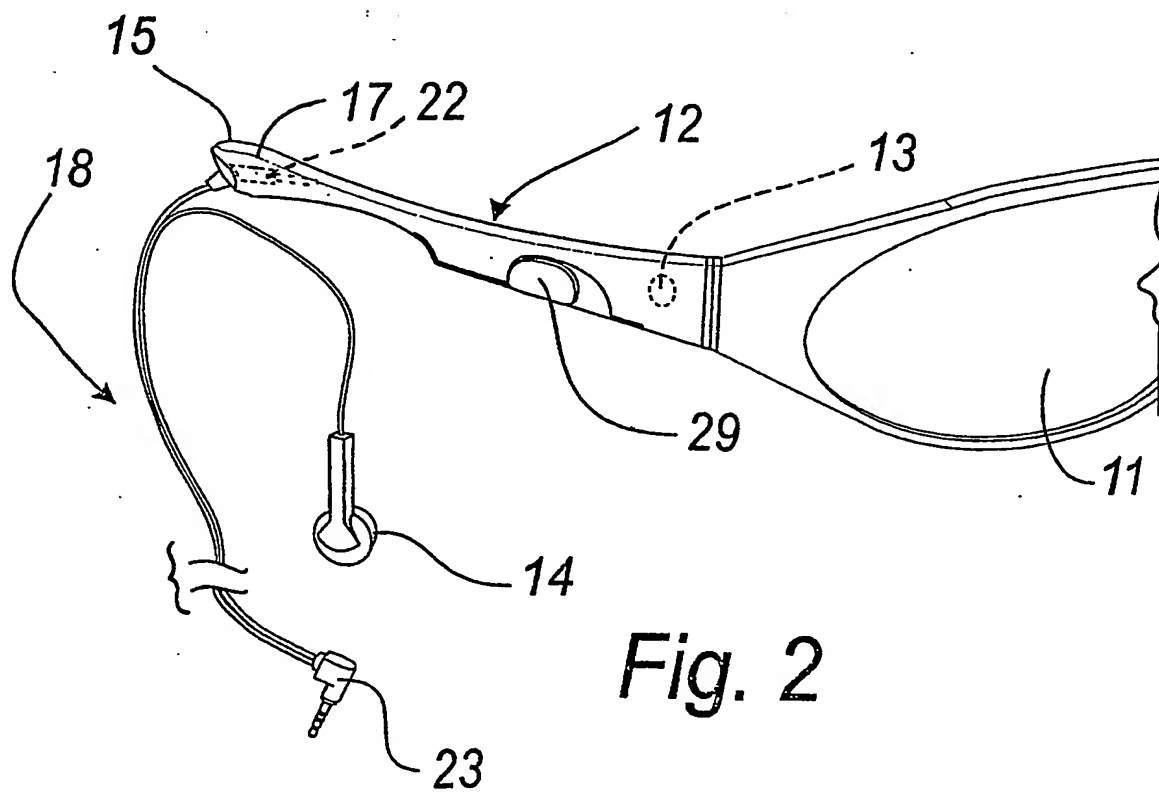
13. The eyeglasses according to claims 11 and 12, characterized in that said button (29) has at least one of the following functions:

- manual answer (call acceptance);
- end of call;
- voice call start.

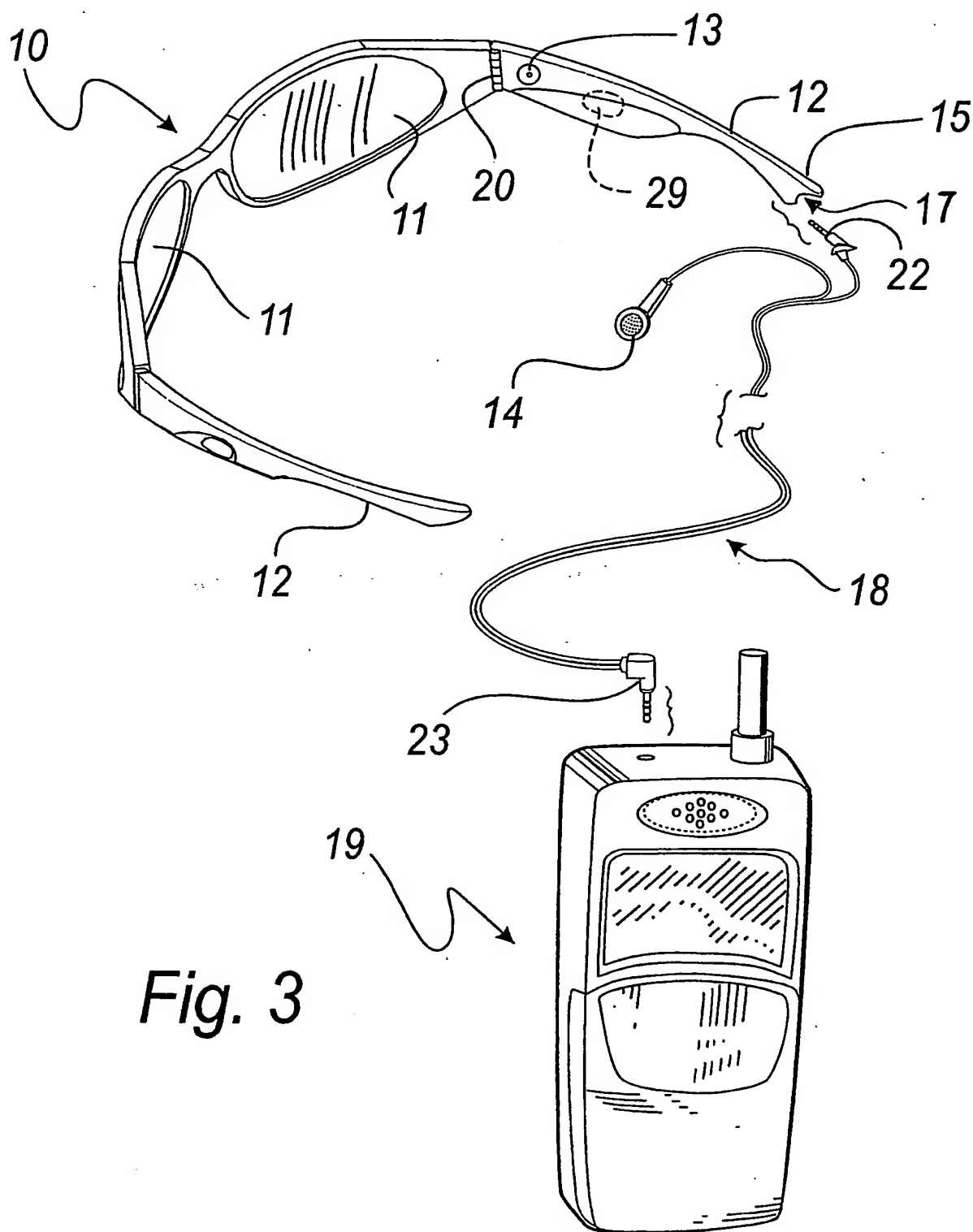
14. A connecting cable (18) for eyeglasses, characterized in that it comprises, at its ends, respective connectors (22, 23, 23a), one of said connectors being complementary to a connector (17) of the eyeglasses and one of said connectors being complementary to a connector of a telephone, said cable (18) having a branch with an in-ear headset (14).

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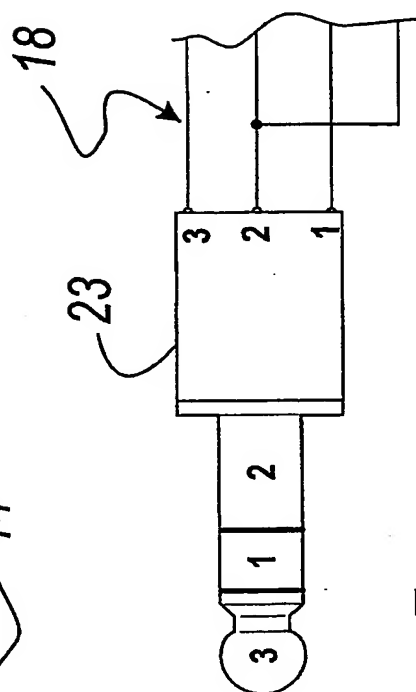
**Fig. 1****Fig. 2**

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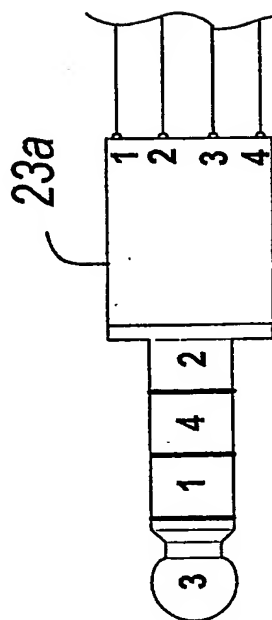


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**Fig. 4**



**Fig. 5**



**Fig. 6**

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/00368

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G02C11/06

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G02C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

9 April 2003

Date of mailing of the international search report

16/04/2003

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/00368

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